

REMARKS

Claims 1, 3-13, and 15-30 are pending in the present Application. Claims 1, 10, 26, 27, and 30 have been amended, no claims have been canceled or added, leaving claims 1, 3-13, and 15-30 for consideration upon entry of this Amendment. No new matter has been added by the claim amendments. Reconsideration and allowance of the claims are respectfully requested in view of the forgoing amendments and the following remarks.

Claim Amendments

The Examiner had requested in the Office Action dated 09/26/2006 that to expedite the prosecution of the application, the Applicants should use “language from the specification or drawn directly from the examples of the specification that would clearly and further specify the claimed language.” (Office Action dated 09/26/2006, page 2) To further advance prosecution of the claims, independent claims 1, 26, 27, and 30 have been amended to contain the language “such that a ten gram sample of polymeric material dissolved in fifty milliliters of chloroform exhibits fewer than 5 visible specks when viewed with the aid of a light box” provided at paragraphs [0029] and [0085] of the Specification as originally filed. This language helps to clarify the term “substantially free of visible particulate impurities.”

The independent claims 1, 26, 27, and 30 were amended to contain the term “wherein the melt filtration system is maintained at a temperature of about 280°C to about 380°C.” Support for the amendment can be found in paragraph [0028] and Table 1 of the Specification as originally filed. Claim 10 was amended to adjust the range of the melt filtration system temperature. Support for the amendment can be found in paragraph [0028] of the Specification as originally filed.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3-13, and 15-30 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over US 6,015,512 to Yang et al. (hereinafter referred to as “Yang”). Applicants respectfully traverse this rejection.

Yang generally discloses an extrusion-compression molding process for making ophthalmic lenses from polymeric material. Specific polymeric materials disclosed include thiourethane-urethane copolymers, polystyrene, acrylic polymers, polycarbonate, and SAN. (Yang, col. 3, ll. 25-

28.) The reference also discloses a screen changer for filtering a polymer melt. (Yang, col. 6, ll. 4-5.)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated a skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Independent claims 1, 26, 27, and 30 are each directed to a method of purifying a polymeric material by melt filtering a melt of poly(arylene ether) and poly(alkenyl aromatic). In each claim, the filtered polymeric material is substantially free of visible particulate impurities. As defined in the Specification as filed, and now present in the claims themselves, “substantially free of visible particulate impurities” means

that a ten gram sample of polymeric material dissolved in fifty milliliters of chloroform (CHCl_3) exhibits fewer than 5 visible specks when viewed with the aid of a light box. Particles visible to the naked eye are typically those greater than 40 micrometers in diameter.

(Specification, [0029].)

Moreover, each of claims 1, 26, and 30 also requires a residence time in the extruder of less than or equal to about 1 minute; and claim 27 requires the extruder having a specific throughput rate of about 0.5 kg/cm^3 to about 8 kg/cm^3 .

Finally, the melt filtration system is required by the claims to be maintained at a temperature of about 280°C to about 380°C .

Yang does not render obvious claims 1, 26, 27, and 30 as the reference fails to teach or suggest each and every element of the instant claims. In particular, Yang fails to teach or suggest melt filtering the particular polymer blends of poly(arylene ether) and poly(alkenyl aromatic) as required by the claims. There is no mention whatsoever of a poly(arylene ether) in the reference. The Examiner asserted that “it would have been obvious ... to employ the polymer blend since the filtering of melts is commonly known and practiced in the art”. (Office Action dated 09/26/2006, first paragraph on page 4) It appears that the Examiner referred the “polymer blend” to the particular

blend of poly(arylene ether) and poly(alkenyl aromatic) of the instant claims. Applicants respectfully disagree. The particular polymer blend of poly(arylene ether) and poly(alkenyl aromatic) of the instant claims is simply not discussed in any way in Yang.

Yang also fails to teach or suggest a residence time in the extruder of less than or equal to about 1 minute (claims 1, 26, and 30) or the extruder having a specific throughput rate of about 0.5 kg/cm³ to about 8 kg/cm³ (claim 27). The Examiner also asserted that “it would have also been obvious to employ a short residence time, 5 minutes or less since it is also widely known ... to reduce the residence time ... since degradation is a function not only of temperature but also time”. (Office Action dated 09/26/2006, third paragraph on page 4) Applicants respectfully disagree as Yang simply fails to disclose any residence time at all or the particular throughput of the instant claim 27. The particular residence time or throughput rate is important to obtain the filtered blend of the claimed purity as too short a residence time would not provide sufficient melting and/or filtration while too long a residence time would degrade the particular polymer blend of the instant claims. (Paragraphs [0013] and [0020])

Yang further fails to teach or suggest that the filtered polymeric material is substantially free of visible particulate impurities.

Finally, Yang fails to teach or suggest the required temperature of the melt filtration system.

It is respectfully suggested that the Examiner appears to have used Applicants’ own disclosure to select portions of the cited reference to allegedly arrive at Applicants’ invention. This kind of hindsight rejection is not permitted under 35 U.S.C. § 103. *In re Fine*; *In re Kahn*, No. 04-1616 (CAFC March 22, 2006) citing *In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002); and *In re Rouffett*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998).

As the Yang fails to teach or suggest each and every limitation of the independent claims, the claims have not been rendered obvious. For at least the reasons presented above, Applicants respectively request reconsideration and withdrawal of the rejections of claims 1, 3-13, and 15-30 under 35 USC §103(a) over Yang.

Claim Rejections Under 35 U.S.C. § 102(a, b, or e)

Claims 1, 3-13, 15 stand rejected under 35 U.S.C. § 102(a, b, or e), as allegedly anticipated by United States Patent No. 3,457,343 (hereinafter referred to as “the ‘343 patent”);

JP 63256427 (hereinafter referred to as “JP427”); and JP 63091231 (hereinafter referred to as “JP231”). The Examiner also has rejected the same claims as anticipated by United States Patent No. 3,563,849 (hereinafter referred to as “the ‘849 patent”) (Office Action dated 09/26/2006, first paragraph on page 6). Applicants respectfully traverse this rejection.

The ‘343 patent generally discloses a process for wet spinning of threads from poly-2,6-disubstituted paraphenylene ethers comprising extruding a solution of said ether in an aliphatic halohydrocarbon into a coagulation bath consisting essentially of 5-90% by volume of said halohydrocarbon and 95-10% by volume of a liquid in which the ether is insoluble and which is miscible with said halohydrocarbon. (Abstract)

The ‘849 patent generally discloses an improved rubber structure reinforced with an improved polyester reinforcing fiber modified with either an isocyanate or in combination with a polycarbonate present in the polyester prior to fiber formation. (Abstract)

JP427 generally discloses a process of dissolving a resin composition which comprises a polymeric part made from aromatic vinyl monomer and a poly(phenylene ether) part, into an organic solvent, filtering the solution to remove fine particulate foreign matter, supplying the solution to a vent type screw extrusion granulation to remove the organic solvent, and melt-molding the resin composition. (English Abstract)

JP231 generally discloses a method of making an optical element involving melt-molding a resin composition containing a mixture or a block copolymer of a polymer prepared from aromatic vinyl monomers and a polyphenylene ether. The resin composition contains 10,000/g or fewer of foreign matter of which the diameter is 1 micron or larger. The resin composition is prepared by dissolving the resin into chloroform, benzene, toluene, or xylene, and filtering; and the resin composition prepared by sedimentation from a poor solvent solution for recovery. (English Abstract)

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

The ‘343 patent does not anticipate the instant independent claim 1 as this reference fails to disclose each and every element of the claim. The ‘343 patent discloses a process for wet spinning of threads involving extruding a *solution* of paraphenylene ethers in an organic solvent (aliphatic halohydrocarbon) into a coagulation bath. However, this reference in no way discloses

melt blending a polymer blend in an extruder to form a *melt* and *melt filtering* the melt to obtain a purified material as required by the instant claim. The difference between filtering polymer melts and filtering solutions of polymer material is clarified in the Specification as originally filed at paragraph [0062]

In one embodiment, *prior to melt filtration*, the poly(arylene ether) and/or poly(alkenyl aromatic) may be *dissolved in a suitable solvent to form a solution which may be filtered through one or more solution filtration systems* to form a filtrate. The poly(arylene ether) and/or poly(alkenyl aromatic) may be isolated from the filtrate prior to its introduction to the compounder, if used, or to the extruder employed to form the melt.

(Emphasis added) Thus it is clear that a polymer melt is different from a polymer solution. Furthermore, one of ordinary skill in the art would understand that a melt is distinct from polymer in solution. Accordingly, the Applicants respectfully assert that the '343 patent fails to teach filtering a melt.

Moreover, the '343 also fails to disclose the claimed residence time in the extruder of less than or equal to about 1 minute. As presented above, this residence time is important in obtaining filtered polymer blend of the required purity.

Finally, the '343 patent fails to teach the melt filtration system that is to be maintained at a temperature of about 280°C to about 380°C as is required by claim 1.

Accordingly, the '343 patent fails to teach each and every limitation of claims 1, 3-13, and 15 and, therefore, these claims are not anticipated by the '343.

The '849 patent does not anticipate the instant independent claim 1 as this reference fails to disclose each and every element of the claim. The '849 patent discloses a process of adding polycarbonate to polyester with other modifying agents, passing the mixture to a melting zone as in an extruder, and then forwarding the melt to a filter pack. (Col 7, ll 17-26) However, this reference fails to disclose melt filtering the polymer blend of poly(arylene ether) and poly(alkenyl aromatic) required by the instant claim. Moreover, the '849 patent also fails to disclose the claimed residence time in the extruder of less than or equal to about 1 minute. Finally, the '849 patent fails to teach the melt filtration system that is to be maintained at a temperature of about 280°C to about 380°C as is required by claim 1. At least for these reasons, independent claim 1 and its dependent claims 3-13, and 15 are not anticipated by the '849.

JP427 does not anticipate the instant independent claim 1 as this reference fails to disclose each and every element of the claim. JP427 discloses a process of dissolving a resin composition into an organic solvent, filtering the solution to remove foreign matter, supplying the solution to an extruder to remove the organic solvent, and melt-molding the resin composition. The filtration process disclosed in this reference is a *solution filtration* process. This reference fails to disclose in any way *melt filtering* a polymer melt to obtain a purified material as required by the instant claim. Furthermore, JP427 fails to teach the limitation required by claim 1 that a melt filtration system is to be maintained at a temperature of about 280°C to about 380°C. At least for these reasons, independent claim 1 and its dependent claims 3-13, and 15 are not anticipated by JP427.

JP231 does not anticipate the instant independent claim 1 as this reference fails to disclose each and every element of the claim. JP231 discloses a process of dissolving a resin into an organic solvent, filtering (the solution), and sedimentating the resin composition from the solution for recovery. The filtration process disclosed in this reference is a *solution filtration* process. However, this reference fails to disclose in any way *melt filtering* a polymer *melt* to obtain a purified material as required by the instant claim. Furthermore, JP231 fails to teach the limitation required by claim 1 that a melt filtration system is to be maintained at a temperature of about 280°C to about 380°C. At least for these reasons, independent claim 1 and its dependent claims 3-13, and 15 are not anticipated by JP231.

Therefore, Applicants respectively request reconsideration and withdrawal of the rejections of claims 1, 3-13, and 15 under 35 USC §102(a, b, or e).

Conclusion

It is believed that the foregoing Amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-1131.

Respectfully submitted,
CANTOR COLBURN LLP

By_ /Roberta L. Pelletier/_____
Roberta L. Pelletier
Registration No. 46,372

Yong Zhao
Registration No. 57,014

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CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 43249